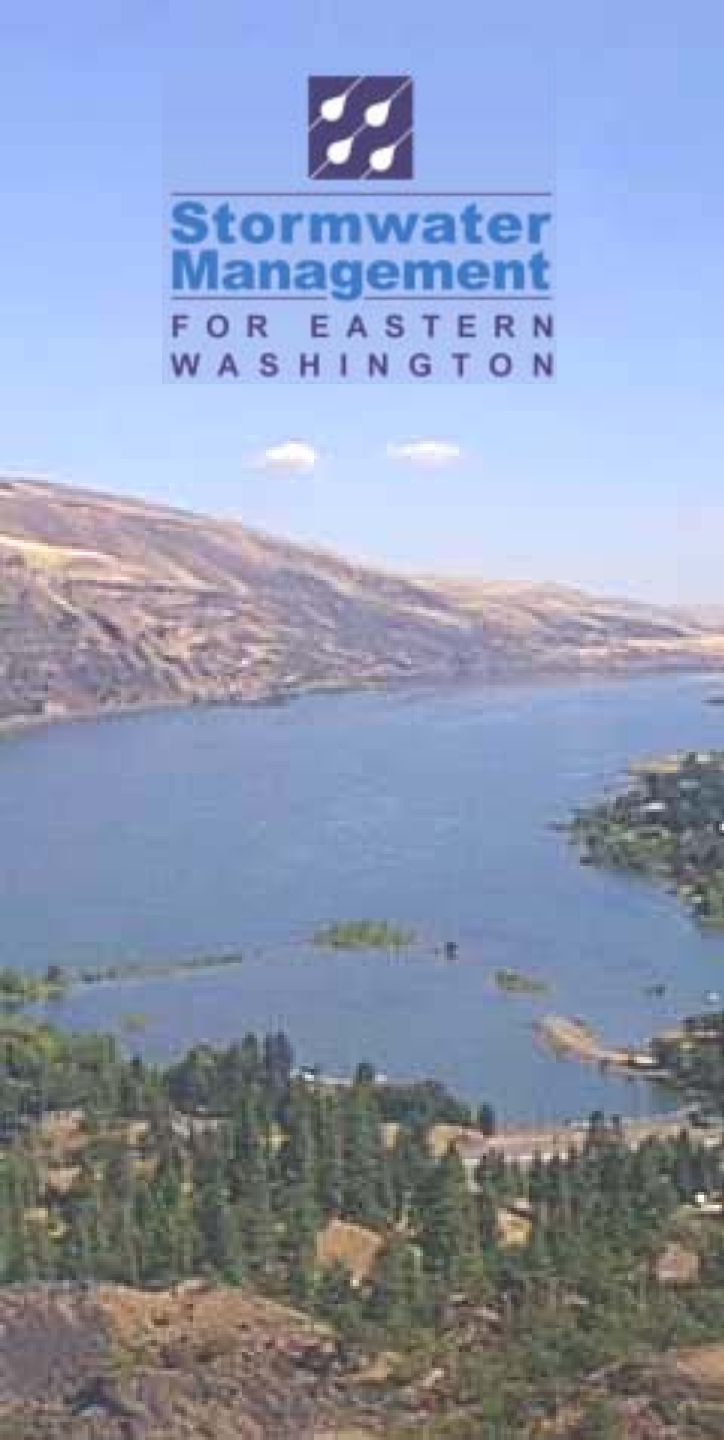




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Stormwater Management for Eastern Washington

Project Update



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WELCOME

Public Workshops June 23-26, 2003



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Presentation Overview

- **E. WA Stormwater Project background information**
- **Environmental and regulatory reasons for stormwater management**
- **Model Municipal Stormwater Program for E. WA**
- **Final Draft Stormwater Management Manual for E. WA**
- **Next steps**



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Eastern Washington Stormwater Project Background



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Eastern Washington Stormwater Project

- Stakeholders working together to develop regionally appropriate tools to manage stormwater
- Developing specific guidance documents for E. WA
 - Model Municipal Stormwater Program
 - Stormwater Management Manual



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Eastern Washington Stormwater Project

- In 1999, Ecology proposed a statewide stormwater manual
 - E. WA representatives requested a separate manual
- In June 2001, formed a Steering Committee and two Subcommittees
 - Model Municipal Stormwater Program
 - Stormwater Management Manual
- Hired a consultant Team:
 - Tetra Tech/KCM (lead)



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Project Participants

Cities of:

- Chelan
- Colville
- Ellensburg
- Kennewick
- Pasco
- Pullman
- Richland
- Spokane
- Wenatchee
- Yakima

Counties of:

- Benton
- Chelan
- Grant
- Spokane
- Yakima



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Project Participants (cont'd)

■ Other groups:

- Association of WA Cities
- County Road Administration Board
- Home Builders Associations
 - Tri-Cities
 - Spokane
 - Yakima/Central Washington

■ State agencies:

- Department of Ecology
- Department of Transportation

■ Engineering companies:

- HDR Engineering
- JUB Engineers
- RH2 Engineering



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Eastern Washington Stormwater Project

- **November 2001 - present:**
 - Monthly subcommittee meetings
 - Draft documents developed in September 2002
 - First round of public workshops held October 2002
 - About 950 comments received (~925 on the Manual)
 - Public comments considered and both documents revised



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The Manual and Model Program work together

Model Program

- Developed to help communities manage stormwater to protect water quality and comply with new stormwater regulations
- Provides a framework, options, and resources to develop local stormwater programs

Stormwater Manual

- Provides technical standards and guidance for on-site stormwater management techniques



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E. WA Stormwater Project – Looking Ahead

- Gather public comments on final draft Manual through August 18, 2003
- Finalize both documents
 - Model Program available this summer
 - Stormwater Manual completed late 2003 or early 2004
- Model Program provides basis for NPDES General Permit for E. WA
- Writing the permit involves public decision-making and review process beginning in spring 2004



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Environmental and Regulatory Reasons for Stormwater Management



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Is Stormwater Really a Problem in E WA?

- Leading cause of water quality impairment in urban streams
- Pollutants pose the fastest growing water quality problem
- Runoff quantity:
 - too much, too fast



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Regulations Affecting Stormwater Management

- **Clean Water Act (NPDES, TMDLs)**
- **Safe Drinking Water Act (UIC)**
- **Hydraulic Project Approvals**
- **Endangered Species Act**
- **Other Federal and State regulations**



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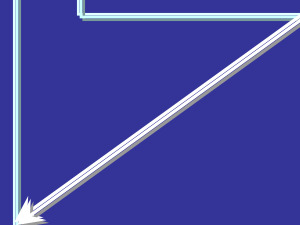
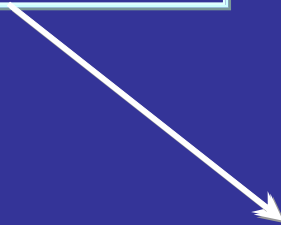


Benefit of the Model Program and Manual

Environmental
need and
science

Federal
and State
regulations

Presumptive
approach to
protecting
water quality





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NPDES Phase II Municipal Stormwater Regulations

- Effective March 10, 2003; Ecology developed an application form
- Permit coverage required for:
 - Census-defined urban areas with discharges to surface waters
- Ecology will develop two general municipal permits: E. and W. WA
- Both permits will require local programs to manage stormwater



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NPDES Phase II Municipal Stormwater Permit

- Development of E WA permit will be done in two phases:
 - Collect and provide input on legislature's list of issues
 - Develop draft permit after getting further legislative input
- Designation criteria defined in a parallel public process



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How it all fits together...

- Final Model Program published summer 2003
- Public comment on Final Draft Manual summer 2003
- Final Manual completed late 2003 or early 2004
- First stage of permit development process fall 2003
- UIC rule out for comment fall 2003
- Draft Phase II permit in mid-late 2004



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FINAL

Model Municipal Stormwater Program for Eastern Washington



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Why Have a Model Program?

- Help all E. WA communities manage stormwater to protect water quality
- Help regulated E. WA communities understand & comply with federal NPDES permit requirements
- Form basis for Ecology's NPDES Phase II general permit for E. WA jurisdictions



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Model Program

- Chapter 1 – Introduction
- Chapter 2 – Public Education & Outreach
- Chapter 3 – Public Participation & Involvement
- Chapter 4 – Illicit Discharge Detection & Elimination
- Chapter 5 – Construction Site Runoff Control
- Chapter 6 – Post Development Runoff Control
- Chapter 7 – Pollution Prevention / Good Housekeeping
- Chapter 8 – Reporting & Assessment
- Chapter 9 – Summary of Program & Costs



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Comments Received on the Model Program

- Model Program cover only census-defined UA or extend to Urban Growth Boundary?
- Clarify approaches to non-stormwater discharges to MS4s & agricultural runoff
- Clarify expectations for illicit discharge detection and elimination
- Clarify local jurisdiction role in implementing construction and industrial stormwater permits
- Examples for evaluating local programs
- Consistency with the Manual
- Editorial/organizational comments



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Final Model Program

- Final document will be published in late July or early August 2003
- Should be available on Ecology's website by mid-July 2003



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FINAL DRAFT

Stormwater Management Manual for Eastern Washington



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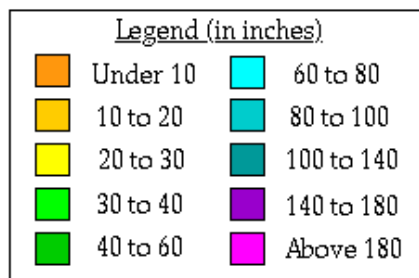
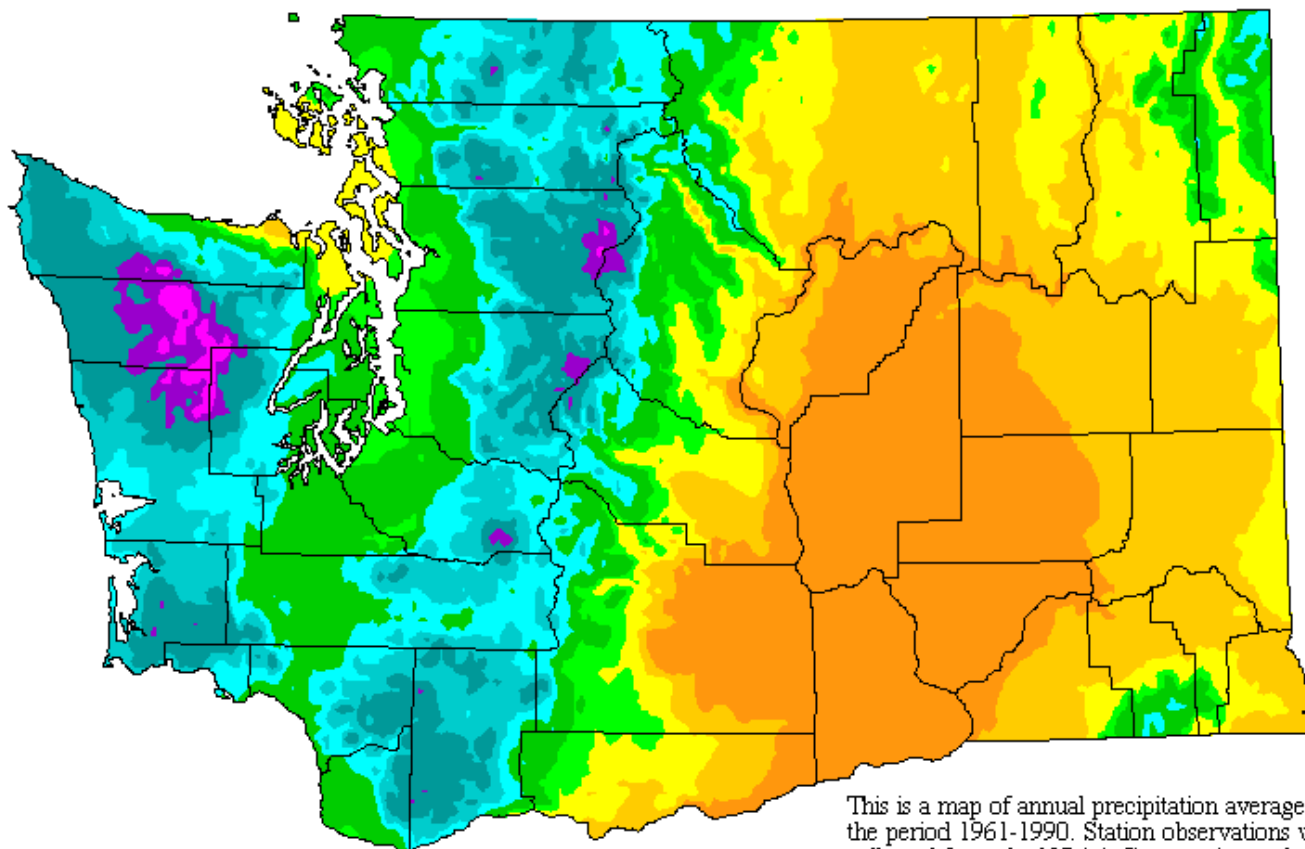


Why Have a Stormwater Manual?

- Environmental need
- Regulatory need
- Regionally specific
- Provide a commonly accepted approach for on-site stormwater management

Average Annual Precipitation

Washington



This is a map of annual precipitation averaged over the period 1961-1990. Station observations were collected from the NOAA Cooperative and USDA-NRCS Snotel networks, plus other state and local networks. The PRISM modeling system was used to create the gridded estimates from which this map was made. The size of each grid pixel is approximately 4x4 km. Support was provided by the NRCS Water and Climate Center.

For information on the PRISM modeling system, visit the SCAS web site at <http://www.ocs.orst.edu/prism>

The latest PRISM digital data sets created by the SCAS can be obtained from the Climate Source at <http://www.climatesource.com>



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Technical Manual

The Manual is
NOT regulation

It is a **guidance document**
to assist in compliance with
existing regulations



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Manual Outline

- Chapter 1 – Introduction
- Chapter 2 – Core Elements for New Development & Redevelopment
- Chapter 3 – Stormwater Site Plans
- Chapter 4 – Hydrologic Analysis and Design
- Chapter 5 – Runoff Treatment Facility Design
- Chapter 6 – Flow Control Facility Design
- Chapter 7 – Construction Stormwater Pollution Prevention
- Chapter 8 – Source Control
- Glossary, Bibliography, and Cost Analysis



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New Development and Redevelopment

- New development: conversion of undeveloped or pervious surfaces to impervious surfaces and managed landscape areas
- Redevelopment: *replacement* of impervious surfaces on a developed site, with exceptions for routine maintenance



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Core Elements

**for New Development
and Redevelopment Projects
in Eastern Washington**



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CE #1 – Preparation of a Stormwater Site Plan





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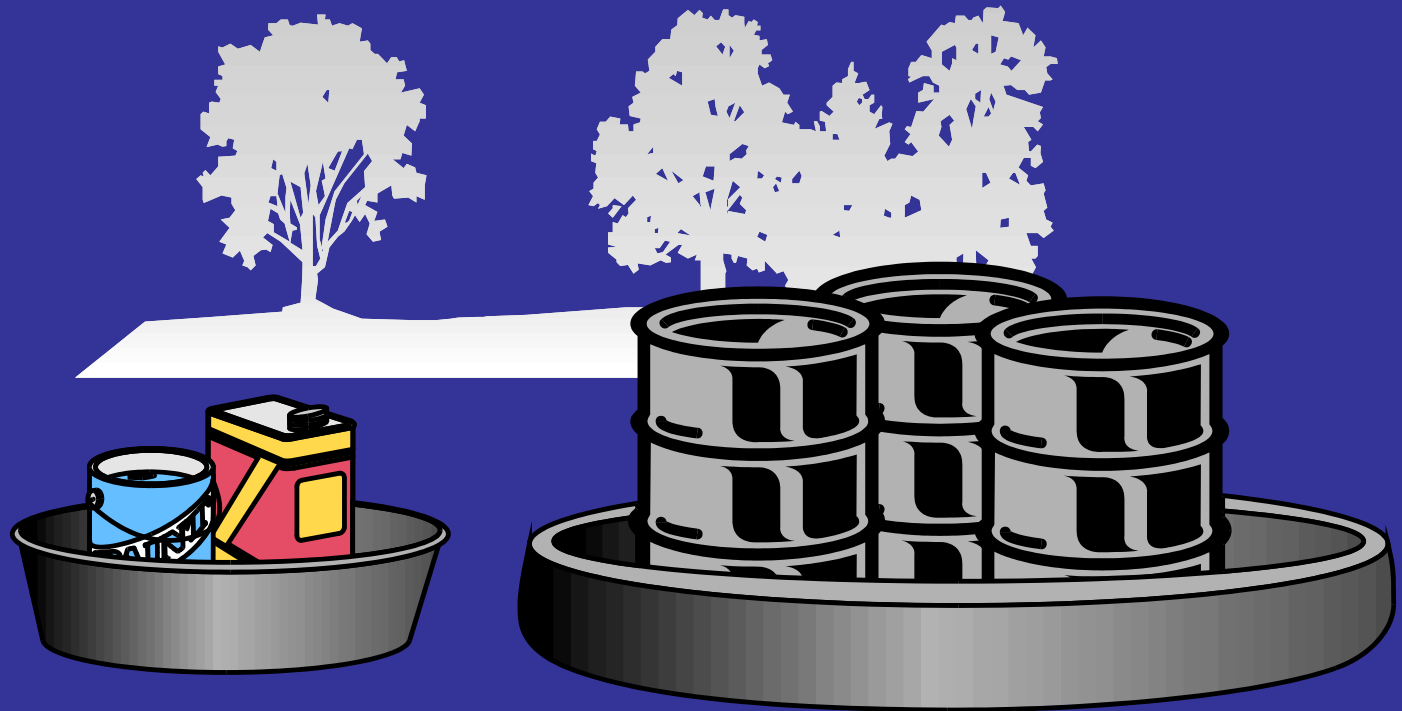
CE #2 – Construction Stormwater Pollution Prevention





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CE #3 – Source Control of Pollution





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CE #4 – Preservation of Natural Drainage Systems





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CE #5 – Runoff Treatment





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CE #6 – Flow Control





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CE #7 – Operation and Maintenance





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CE #8 – Local Requirements

- **Special considerations for local conditions**
- **Unique water quality concerns**
- **Flood protection and stormwater conveyance (not addressed by the Manual)**
- **Other requirements**





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Comments received on the Manual

- Organizational: switch and rename Ch 5 and Ch 6 to match CE 5 and CE 6
- Clarify where Core Elements are required
- Clarify Redevelopment definition
- Clarify road project requirements: don't make burdensome on small communities
- Use ADT to establish thresholds and define pollutant loading classifications
- Clarify and simplify modeling approach
- Allow custom local design storms



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Comments received on the Manual (cont'd)

- **Require/don't require snowmelt factor**
- **Add more streams to list exempt from flow control**
- **Update selection, design and operation criteria for numerous BMPs**
- **Revise approach to evaluating pre-treatment requirements for drywells and other UIC facilities**
- **Clarify expectations of local jurisdictions**



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Additional Information Considered

- During the public comment period, Ecology supported the hiring of additional consultants to provide expertise and feedback on:
 - Design storms and modeling
 - Whether flow control should be required for streams in E WA



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Design Storms

- **Reliable estimates of runoff volumes and flow rates are needed to size runoff treatment and flow control facilities**
- **For first draft, we considered**
 - **Generic design storms that have typically been used: SCS Type II**
 - **Custom design storms for eastern Washington based on historical data**



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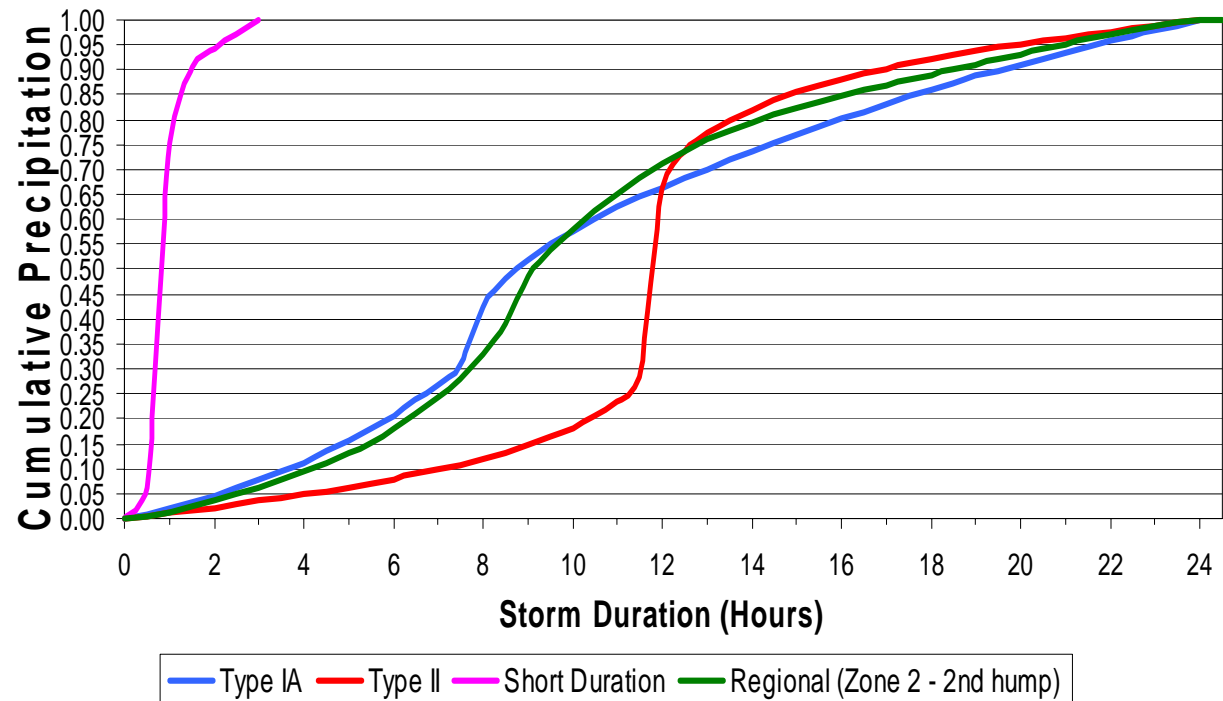
Design Storms (cont'd)

- Before revising the draft, we hired an additional consultant to provide expertise & feedback:
 - Reviewed the custom storms –two events with a dry period
 - Compared the 2nd event within the custom storm to the generic SCS Type IA storm
 - Recommended use of the SCS Type IA storm distribution (or 2nd event) for the long-duration due to ease of use



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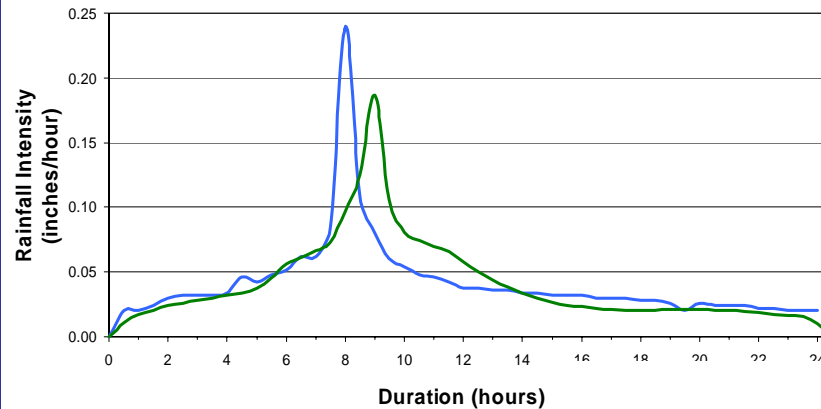
Design Storms (cont'd)





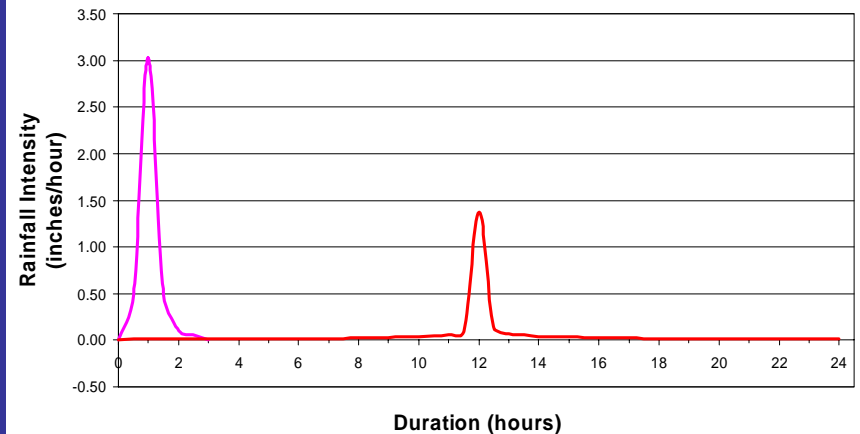
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Design Storms (cont'd)



Type IA and
Regional

Short-duration
and Type II





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Flow Control

- In first draft, we asked whether flow control should be required and, if so, what design storm it should be based upon
- Before revising the draft, we stepped back and asked for an independent, objective opinion



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Flow Control (cont'd)

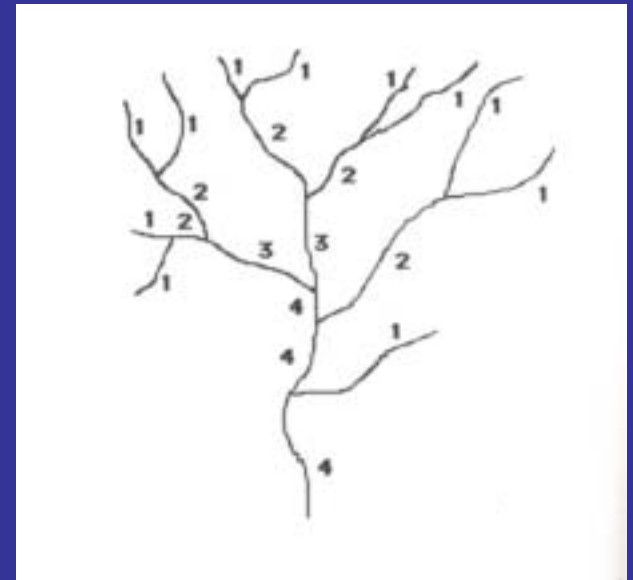
- Literature review conducted
- No information specific to E WA
- Few arid climate studies
- Focus on consideration of universal principles of geomorphology:
 - Increase in runoff rates and volumes will change stream channels over time



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Flow Control (cont'd)

- Recommended that flow control be required for smaller streams in eastern Washington, and that 5th order streams be exempt





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Revisions made to the Manual

- Switched and renamed Ch 5 & 6
- Major revisions to Chapter 4
- SCS Type IA storm should replace the currently-used SCS Type II storm
- Expanded list of streams exempt from flow control requirements
- ADT counts and trip ends used to define pollutant loading thresholds



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Revisions made to the Manual (cont'd)

- Revised the definition and developed a risk-based approach for requiring treatment at redevelopment projects
- Clarified guidance on using existing wetlands for flow control and runoff treatment
- Added design criteria to construct wetlands for runoff treatment
- Added new guidance for using natural dispersion as a BMP



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Revisions made to the Manual (cont'd)

- Updated technical requirements for numerous BMPs
- Added more arid- and cold-weather considerations for BMPs
- Developed a new framework for evaluating pre-treatment requirements for drywells and other Underground Injection Control facilities (with UIC rule revision advisory committee)



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Revisions made to the Manual (cont'd)

- Added local jurisdiction roles
- Analyzed cost for typical projects
- Included “Response to Comments”



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Comment Period

- We're **ALMOST** done writing the Manual!
- Please submit your comments today or in writing to Ecology by August 18, 2003



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The Model Program and the Manual work together for Eastern Washington!



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Wrap-up



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Next Steps

- Public comment period through August 18, 2003
- Final Model Program published late July or early August 2003
- Final Manual should be out in late 2003 or early 2004, depending on the number and content of comments received



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Information Stations

- **Stormwater Manual**
 - Organization, content and issues
 - Revisions made in final draft
- **Other stormwater information**
 - Model Program
 - Phase II permit development questions
 - UIC rule revision
 - Construction and industrial general stormwater permits



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Questions?